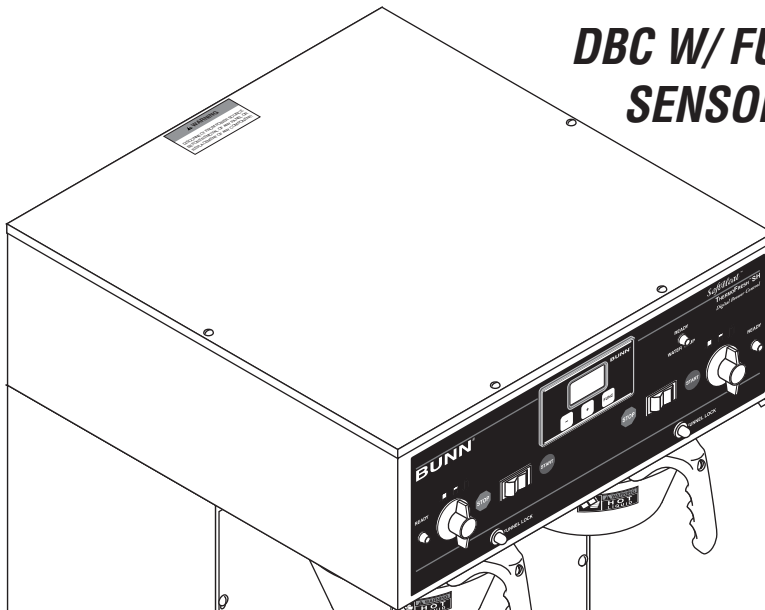


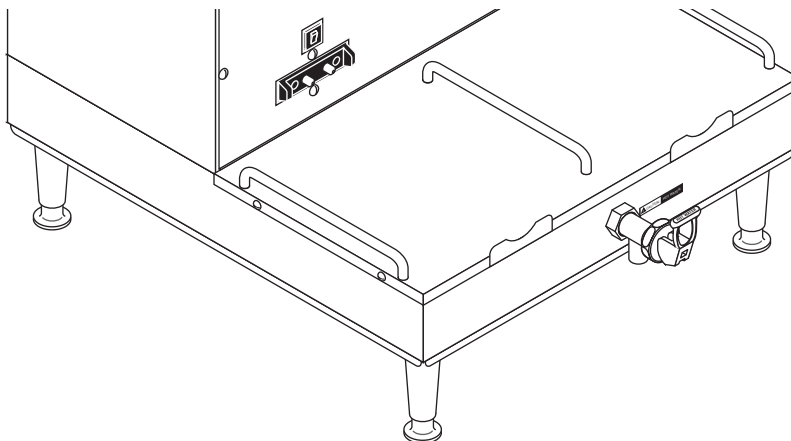
# BUNN® *DUAL™ SH*

*DBC W/ FUNNEL LOCKS, FUNNEL  
SENSOR & SERVER DETECT*



## **DISCONTINUED VERSION**

**The information in this manual  
is no longer current**



## **OPERATING & SERVICE MANUAL**

**BUNN-O-MATIC CORPORATION**

POST OFFICE BOX 3227

SPRINGFIELD, ILLINOIS 62708-3227

PHONE: (217) 529-6601 FAX: (217) 529-6644

## WARRANTY

Bunn-O-Matic Corp. ("Bunn") warrants the equipment manufactured by it to be commercially free from defects in material and workmanship existing at the time of manufacture and appearing within one year from the date of installation. In addition:

1.) Bunn warrants electronic circuit and/or control boards to be commercially free from defects in material and workmanship for two years from the date of installation.

2.) Bunn warrants the compressor on refrigeration equipment to be commercially free from defects in material and workmanship for two years from the date of installation.

3.) Bunn warrants that the grinding burrs on coffee grinding equipment will grind coffee to meet original factory screen sieve analysis for three years from date of installation or for 30,000 pounds of coffee, whichever comes first.

This warranty does not apply to any equipment, component or part that was not manufactured by Bunn or that, in Bunn's judgement, has been affected by misuse, neglect, alteration, improper installation or operation, improper maintenance or repair, damage or casualty.

**THE FOREGOING WARRANTY IS EXCLUSIVE AND IS IN LIEU OF ANY OTHER WARRANTY, WRITTEN OR ORAL, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF EITHER MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.** The agents, dealers or employees of Bunn are not authorized to make modifications to this warranty or to make additional warranties that are binding on Bunn. Accordingly, statements by such individuals, whether oral or written, do not constitute warranties and should not be relied upon.

The Buyer shall give Bunn prompt notice of any claim to be made under this warranty by telephone at (217) 529-6601 or by writing to Post Office Box 3227, Springfield, Illinois, 62708-3227. If requested by Bunn, the Buyer shall ship the defective equipment prepaid to an authorized Bunn service location. If Bunn determines, in its sole discretion, that the equipment does not conform to the warranty, Bunn shall repair the equipment with no charge for parts during the warranty period and no charge for labor by a Bunn Authorized Service Representative during the warranty period. If Bunn determines that repair is not feasible, Bunn shall, at its sole option, replace the equipment or refund the purchase price for the equipment.

**THE BUYER'S REMEDY AGAINST BUNN FOR THE BREACH OF ANY OBLIGATION ARISING OUT OF THE SALE OF THIS EQUIPMENT, WHETHER DERIVED FROM WARRANTY OR OTHERWISE, SHALL BE LIMITED, AS SPECIFIED HEREIN, TO REPAIR OR, AT BUNN'S SOLE OPTION, REPLACEMENT OR REFUND.** Bunn shall not be liable for any other damage or loss, including, but not limited to, lost profits, lost sales, loss of use of equipment, claims of Buyer's customers, cost of capital, cost of down time, cost of substitute equipment, facilities or services, or any other special, incidental or consequential damages.

## INTRODUCTION

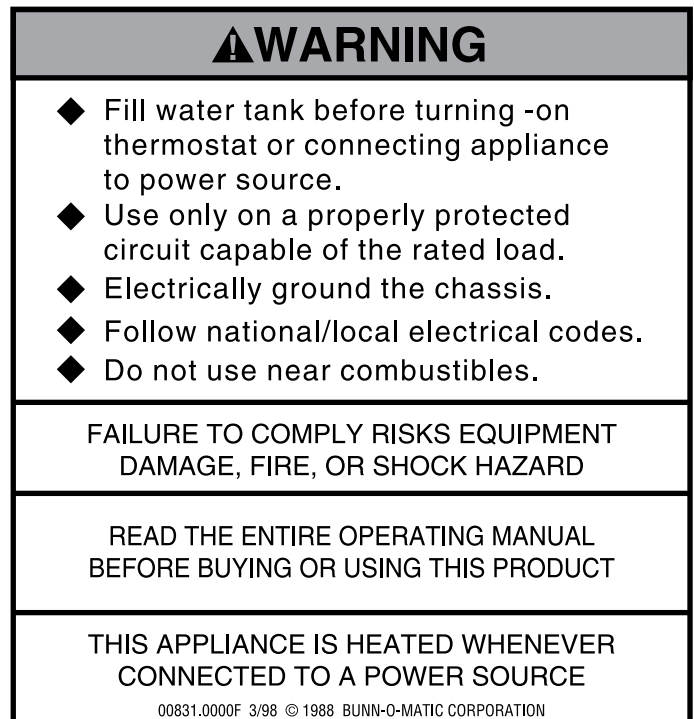
This brewer utilizes *BUNN® DBC™* technology to control most of its functions. The controller is factory set to brew in accordance with accepted coffee industry standards, yet may be customized by the owner to achieve a variety of coffee flavor profiles. All user-accessible features of the controller are viewed and entered using the display unit, an internal box permanently attached to the brewer. The brewer operating settings are stored in the controller and will remain even in the event of power failure. The brewer is also equipped with a hot water faucet for allied beverage use. The brewer is specifically designed for use with BUNN® 1-1/2 gallon or 1-3/4 gallon soft heat servers. It is only for indoor use on a sturdy counter or shelf.

## USER NOTICES

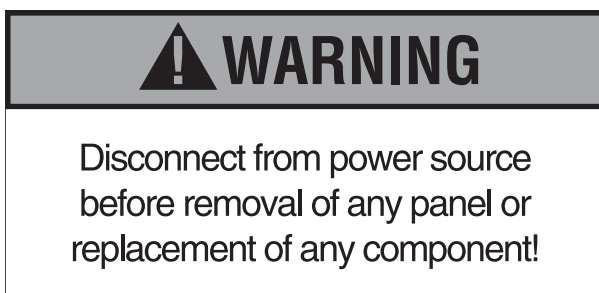
The notices on this brewer should be kept in good condition. Replace unreadable or damaged labels.



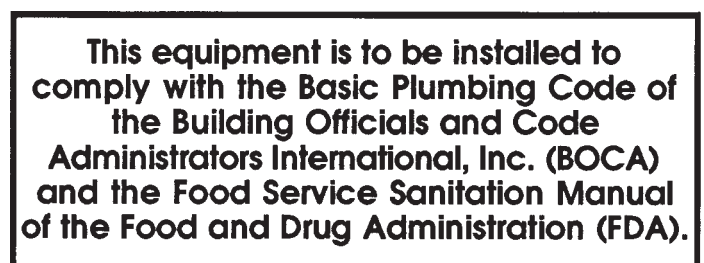
00658.0000



00831.0000



10044.0000



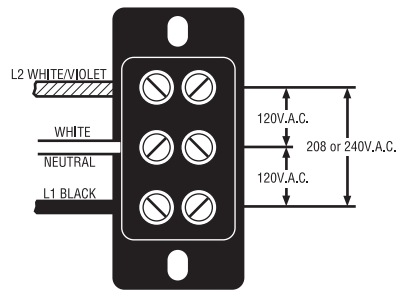
00656.0000



20201.5600

## ELECTRICAL REQUIREMENTS

**CAUTION** - The brewer must be disconnected from the power source until specified in *Initial Set-Up*.



Requires 3-wire, grounded service rated 120/208 or 120/240 volts ac, 30 amp, single phase, 60 Hz.

## ELECTRICAL HOOK-UP

**CAUTION** – Improper electrical installation will damage electronic components.

1. An electrician must provide electrical service as specified.
2. Using a voltmeter, check the voltage and color coding of each conductor at the electrical source.
3. Remove the front panel beneath the sprayheads.
4. Feed the cord through the strain relief and connect it to the terminal block.
5. Connect the brewer to the power source and verify the voltage at the terminal block before proceeding. Replace the front panel.
6. If plumbing is to be hooked up later be sure the brewer is disconnected from the power source. If plumbing has been hooked up, the brewer is ready for Initial Set-Up.

## PLUMBING REQUIREMENTS

This brewer must be connected to a cold water system with operating pressure between 20 and 90 psi (138 and 620 kPa) from a ½" or larger supply line. A shut-off valve should be installed in the line before the brewer. Install a regulator in the line when pressure is greater than 90 psi (620 kPa) to reduce it to 50 psi (345 kPa). The water inlet fitting is ¼" flare or female quick connect.

**NOTE** – Bunn-O-Matic recommends ¼" copper tubing for installations of less than 25 feet and ⅜" for more than 25 feet from the ½" water supply line. A tight coil of copper tubing in the water line will facilitate moving the brewer to clean the counter top. Bunn-O-Matic does not recommend the use of a saddle valve to install the brewer. The size and shape of the hole made in the supply line by this type of device may restrict water flow.

**This equipment must be installed to comply with the Basic Plumbing Code of the Building Officials and Code Administrators International, Inc. (BOCA) and the Food Service Sanitation Manual of the Food and Drug Administration (FDA).**

## PLUMBING HOOK-UP

1. Flush the water line and securely attach it to the flare fitting located on bottom of brewer.
2. Turn on the water supply.

## INITIAL SET-UP

**CAUTION** – The brewer must be disconnected from the power source throughout the initial set-up, except when specified in the instructions.

1. Insert an empty funnel into the funnel rails of one of the brew stations.
2. Place an empty server under the funnel.
3. Connect the brewer to the power source. Water will begin flowing into the tank and stop when the tank is filled to its capacity. Display will show **FAULT 7** until tank is filled with water.
4. Wait approximately twenty minutes for the water in the tank to heat to the proper temperature. **TEMP READY** indicator will come on when tank is at operating temperature.
5. Place a small vessel beneath the faucet and open the faucet handle. Release it when you hear the tank refilling.
6. Place Selector switch in the desired position. Momentarily press the START switch and initiate a brew cycle. (Server and funnel must be present to brew)
7. Water volumes have been preset at the factory. Refer to adjustments for the DBC controller section of this manual should the volume need to be increased or decreased.
8. The brewer is now ready for use in accordance with the coffee brewing instructions.

## OPERATING CONTROLS

### BREW SELECTOR SWITCH

Placing the selector switch in the Small, Medium, or Large position selects the amount of coffee to be brewed. Repositioning this switch after a brew cycle has been initiated does not change the brew batch in progress.

### START/STOP SWITCH

Momentarily pressing and releasing this switch to the START position starts a brew cycle. Momentarily pressing and releasing this switch to the STOP position stops a brew cycle.

## COFFEE BREWING

Three requirements must be met to brew: brewer up to operating temperature, funnel in position, and server in position.

1. Select the desired batch size.
2. Insert a BUNN® filter into the funnel.
3. Pour the proper amount of fresh ground coffee into the filter and level the bed of grounds by gently shaking.
4. Slide the funnel into the funnel rails.
5. Place an empty server under the funnel.
6. Momentarily press and release the START switch. Once brew cycle has been started, funnel is locked in place.
7. When brewing is completed, simply discard the grounds and filter. Funnel lock will release following a programmed length of time that starts at the end of the brew cycle.

## CLEANING

1. The use of a damp cloth rinsed in any mild, non-abrasive, liquid detergent is recommended for cleaning all surfaces on Bunn-O-Matic equipment.
2. Check and clean the sprayhead. The sprayhead holes must always remain open.

**NOTE** – In hard water areas, this may need to be done daily. It will help prevent liming problems in the brewer and takes less than a minute.

# DBC CONTROLLER

## General

This brewer utilizes BUNN® DBC™ technology to control most of its functions. The controller is factory set to brew in accordance with accepted coffee industry standards, yet may be customized by the owner to achieve a variety of coffee flavor profiles. All user-accessible features of the controller are viewed and entered using the display unit. The brewer operating settings are stored in the controller and will remain even in the event of power failure. Three requirements must be met in order to initiate a brew cycle, (1) Server must be present, (2) Funnel must be present, (3) Tank must be up to brewing temperature. Attempting to brew when any or all requirements are not met will result in a non-brew with flashing indicator(s). The display will show what's wrong along with the appropriate Left Ready or Right Ready indicator flashing. The display will show SEr when server is missing, will show FUnL when funnel is missing, and will show COLd when tank is not up to temperature. Display will show any or all of these messages. As they are corrected, that message will disappear. Once requirements are met, it is necessary to press START again to initiate a brew cycle. Flashing indicators can be cleared by pressing the STOP button.

The brewer also features funnel locks that prevents removing the funnel until they retract.

## Home or FUNC Ø screen

When the unit is first connected, the display will be in the "Home Screen" position where the actual temperature of the water in the tank is displayed. The display will revert to this screen when its keys have not been pressed for more than 30 seconds or the "FUNC" key has been held, allowing it to quickly scroll back to this screen. From this screen all other functions are accessed. The brewer will return to normal operation only after the display is returned to this position. The "Home Screen" changes from tank temperature to showing time remaining in brew cycle when a brew cycle has been started. The time remaining is also accompanied by an "L" or "r", showing which side is brewing. If both sides are brewing the display shows the last one initiated. "+" and "-" can be used to toggle between L and r.

## Moving to any other function screen

Pressing the "FUNC" key once will scroll the display to the next available screen. Each controllable element of the brewer has a function number assigned to it and that number 1, 2, 3, etc. will be displayed in the upper left hand corner of the display when you reach that screen. The function number will increase with each press of the "FUNC" key. To scroll backwards or go to a lesser function number, press and hold the function key, then press the minus "—" key. The function number will decrease with each press of the "FUNC" key. NOTE: Pressing the "—" key before the "FUNC" key will change the setting of the function. It is important to press and hold the "FUNC" key before pressing the "—" key.

In any screen other than home screen, the tank heater and tank refill circuits are disabled. They will become active again as soon as the display unit returns to the home screen.

## Programming- Always refer to Function List

Programming is divided into two sections, "USER" and "SECURED". "USER" Section (Functions 1-18) is accessed by pressing the FUNC button on the display box and entering the correct password (unless password is "0"). The "+" and "-" buttons can be used to alter the target values (that are set in the "SECURED" section) by a maximum amount of  $\pm 5\%$ .

Access to the "SECURED" section (Functions 101 and up) is accessed by setting the RUN - PROGRAM switch on the DBC controller to PROGRAM and then entering the correct password (unless password is "0").

### **Setting or adjusting the brewer's controls**

Refer to the function list for the accessible screen numbers and their values. Scroll to the desired function screen and change the value by pressing either the "+" or "-" keys.

The change will not be entered into the programming until you move to another screen by scrolling either up-or-down with the "FUNC" key.

### **Setting or adjusting the tank's water temperature**

At the home screen, the actual temperature of the water in the tank is displayed. The target tank temperature is set at the FUNC 101 screen which is in the "SECURED" Section.

### **Setting or adjusting the batch volumes**

Refer to the function list to determine the proper screen for batch size and side (left or right) of the brewer being set. Program the total amount of brew water as well as the desired percentage of bypass

Note: If the programmed value doesn't produce the exact volume desired, simply adjust it by pressing either the "+" or "-" keys as required to increase-or-decrease it by the difference in ounces.

### **Setting or adjusting parameters for pulsed brewing**

The brewer is capable of pulsing the sprayhead and bypass flows on-and-off over the course of the brew cycle. This gives you the ability to fine-tune the brewer for specific flavor profiles. Refer to the function list for the appropriate screen numbers and their values. Pulse brewing can be programmed for any and all batch sizes. Three settings must be made or changed for each:

- a) The duration in seconds of Off time that occurs between the initial On and subsequent On times.
- b) The initial On time in seconds for the sufficient grounds wetting.
- c) The duration in seconds of subsequent On times that will occur for the remainder of the brew cycle.

### **Setting or adjusting passwords**

The DBC has two passwords that can be set (to any number up to 4 digits) to prevent unauthorized access to programming section of the list. Passwords are default set to "0" which allows free access. FUNC 14 screen is used to set password for the "USER" Section and FUNC XXX (see Function List) for the "SECURED" Section. If the password is forgotten after being set, there is no way of recovering it. The controller must have the factory settings restored by simultaneously pressing and holding the "+" and "-" keys while powering-up the brewer. Hold both keys until the display begins to count, then release them.



## TROUBLESHOOTING

A troubleshooting guide is provided to suggest probable causes and remedies for the most likely problems encountered. If the problem remains after exhausting the troubleshooting steps, contact the Bunn-O-Matic Technical Service Department.

- Inspection, testing, and repair of electrical equipment should be performed only by qualified service personnel.
- All electronic components have 120 - 240 volt ac and low voltage dc potential on their terminals. Shorting of terminals or the application of external voltages may result in board failure.
- Intermittent operation of electronic circuit boards is unlikely. Board failure will normally be permanent. If an intermittent condition is encountered, the cause will likely be a switch contact or a loose connection at a terminal or crimp.
- Solenoid removal requires interrupting the water supply to the valve. Damage may result if solenoids are energized for more than ten minutes without a supply of water.
- The use of two wrenches is recommended whenever plumbing fittings are tightened or loosened. This will help avoid twists and kinks in the tubing.
- Make certain that all plumbing connections are sealed and electrical connections tight and isolated.
- This brewer is heated at all times. Keep away from combustibles.

### WARNING

- Exercise extreme caution when servicing electrical equipment.
- Disconnect the brewer from the power source when servicing, except when electrical tests are specified.
- Follow recommended service procedures.
- Replace all protective shields or safety notices.

Problem	Probable Cause	Remedy
Equipment will not operate.	1. No power or incorrect voltage.	Check the terminal block for 120 volts across the black and white terminals on 120/208 or 120/240 volt brewers.  (B) Check circuit breakers or fuses.
Brew cycle will not start.	1. Server or funnel not present, tank not up to temperature.  2. No water  3. Water strainer	Check plumbing and shut-off valves  (A) Direction of flow arrow must be pointing towards brewer.  (B) Remove the strainer and check for obstructions. Clear or replace.



## TROUBLESHOOTING (cont.)

Problem	Probable Cause	Remedy
Brew cycle will not start (cont.)	4. Start switch	Refer to <i>Service</i> - Start switch for testing procedures. See page 30
	5. Dispense valve	Refer to <i>Service</i> - Dispense valve for testing procedures. See page 20
	6. Brew selector switch	Refer to <i>Service</i> - Brew selector switch for testing procedures. See page 16
	7. Defective DBC	Refer to <i>Service</i> - DBC Controller for testing procedures. See page 19
Automatic refill will not operate	1. No water	Check plumbing and shut-off valves.
	2. Water strainer	(A) Direction of flow arrow must be pointing towards brewer.  (B) Remove the strainer and check for obstructions. Clear or replace.
	3. Solenoid valve	Refer to <i>Service</i> - Solenoid valve for testing procedures. See page 29
	4. Overflow protection switch	Refer to <i>Service</i> - Overflow protection switch for testing procedures. See page 26
	5. Defective DBC	Refer to <i>Service</i> - DBC Controller for testing procedures. See page 19
Beverage level will not adjust (Selector switch in any position)	1. Brew Selector switch	Refer to <i>Service</i> - Selector switch for testing procedures. See page 16

## TROUBLESHOOTING (cont.)

Problem	Probable Cause	Remedy
Water flows into tank continuously .	1. Solenoid valve	Refer to <i>Service</i> - Solenoid valve for testing procedures. See page 29
	2. Defective DBC	Refer to <i>Service</i> - DBC Controller for testing procedures. See page 19
	3. Overflow protection switch	Refer to <i>Service</i> - Overflow protection switch for testing procedures. See page 26
Water from tank is not hot	1. Limit thermostat <b>CAUTION</b> - Do not eliminate or bypass limit thermostat. Use only B.O.M. part #23717.0001	Refer to <i>Service</i> - Limit thermostat for testing procedures. See page 25
	2. Defective DBC	Refer to <i>Service</i> - DBC Controller for testing procedures. See page 19
	3. Tank heaters	Refer to <i>Service</i> - Tank heaters for testing procedures. See page 31
	4. Tank not filled with water, dry plug protection	

## TROUBLESHOOTING (cont.)

Problem	Probable Cause	Remedy
Spitting or unusual steaming from sprayhead or airvents.	1. Lime build-up  <b>CAUTION</b> - Tank and tank components should be delimed regularly depending on local water conditions. Excessive mineral build-up on stainless steel surfaces can initiate corrosive reactions resulting in serious leaks.	Inspect the tank assembly for excessive lime deposits. Delime as required.
Inconsistent beverage level in server.	1. Strainer  2. Improper water pressure  3. Dispense valve  4. Bypass valve	(A) Direction of flow arrow must be pointing towards the brewer.  (B) Remove the strainer and check for obstructions. Clear or replace.  Check the operating water pressure to the brewer. It must be between 20 and 90 psi (138 and 620 kPa).  Refer to <i>Service</i> - Dispense valve for testing procedures. See page 20  Refer to <i>Initial Set-Up</i> on page 4 step #7. For test procedure see page 15
Consistently high or low beverage level in server.	1. Volume adjustment needed	Refer to Setting or Adjusting Batch Volumes, page 7
Dripping from sprayhead.	1. Dispense valve	Refer to <i>Service</i> - Dispense valve for testing procedures. See page 20
Water overflows server.	1. Bypass valve	Refer to <i>Initial Set-Up</i> on page 4 step #7. For test procedures see page 15

## TROUBLESHOOTING (cont.)

Problem	Probable Cause	Remedy
Water overflows filter (cont.)	2. Type of paper filters	BUNN® paper filters should be used for proper extraction.
	3. No sprayhead	Check sprayhead
Beverage overflows server.	1. Beverage left in server	The brew cycle should be started only with an empty server under the funnel.
	2. Volume adjustment needed	Refer to Setting or Adjusting Batch Volumes, page 7
	3. Dispense valve	Refer to <i>Service</i> - Dispense valve for testing procedures. See page 20
Weak beverage	1. Type of paper filters	BUNN® paper filters should be used for proper extraction.
	2. Coffee	A sufficient quantity of fresh drip or regular grind should be used for proper extraction.
	3. Sprayhead	B.O.M. Sprayhead #01082.0002 should be used to properly wet the bed of ground coffee in the funnel.
	4. Funnel loading	The BUNN® paper filter should be centered in the funnel and the bed of ground coffee leveled by gentle shaking.
	5. Water temperature	Empty the server, remove its cover. Place empty funnel over the server entrance, with ON/OFF switch in the "ON" position press the start switch and release it. Check the water temperature immediately below the sprayhead with a thermometer. The reading should not be less than 195° F.

## TROUBLESHOOTING (cont.)

Problem	Probable Cause	Remedy
Brewer is making unusual noises.	1. Solenoid valve	The nut on back of the solenoid must be tight or it will vibrate during operation
	2. Plumbing lines	Plumbing lines should not be resting on the counter top.
	3. Water supply	(A) The brewer must be connected to a cold water line.  (B) Water pressure to the brewer must not be higher than 90 psi (620 kPa). Install a regulator if necessary to lower the working pressure to approximately 50 psi (345 kPa).
	4. Tank heaters	Remove and clean lime off tank heaters.
Server will not heat	1. Circuit breaker	A) Check and reset if necessary  B) Refer to <i>Service</i> - Circuit breaker for test procedures. See page 18
	2. Receptacle Contacts	Clean or replace. See page 27
	3. Transformer	Refer to <i>Service</i> - Transformer for test procedures. See page 32
	4. Rectifier	Refer to <i>Service</i> - Rectifier for test procedures. See page 28

## SERVICE

This section provides procedures for testing and replacing various major components used in this brewer should service become necessary. Refer to *Troubleshooting* for assistance in determining the cause of any problem.

**WARNING** - Inspection, testing, and repair of electrical equipment should be performed only by qualified service personnel. The brewer should be unplugged when servicing, except when electrical tests are required and the test procedure specifically states to plug in the brewer.

### COMPONENT ACCESS

**WARNING** - Unplug the brewer before the removal of any panel or the replacement of any component.

All components are accessible by the removal of the top cover, front inspection panel and server platform.

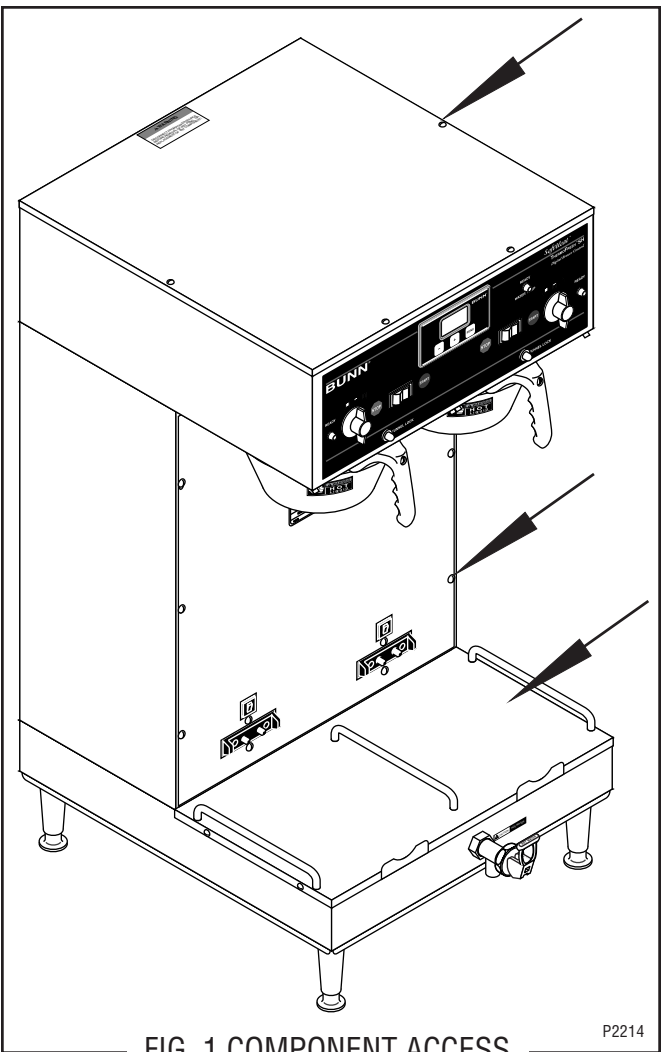


FIG. 1 COMPONENT ACCESS

P2214

The top cover is attached with four #4-40 slotted head screws.

The front inspection panel is attached with eleven #6-32 slotted head screws.

The server platform is attached with four #6-32 slotted head screws.

### Contents

Brew Selector Switches .....	16
Bypass Solenoid Valves .....	15
Circuit Breakers .....	18
DBC Display .....	19
Dispense Solenoid Valves .....	20
Funnel Sensor Switch .....	21
Funnel Lock Solenoid .....	22
Grinder Interface Circuit Board .....	23
Grinder Selector Switch .....	24
Limit Thermostat .....	25
Overflow Protection Switch .....	26
Receptacles (Spring Contacts) .....	27
Rectifiers .....	28
Refill Solenoid Valve .....	29
Start/Stop Switches .....	30
Tank Heaters .....	31
Transformer .....	32
Wiring Diagram .....	34

## SERVICE (cont.)

### BYPASS SOLENOID VALVE

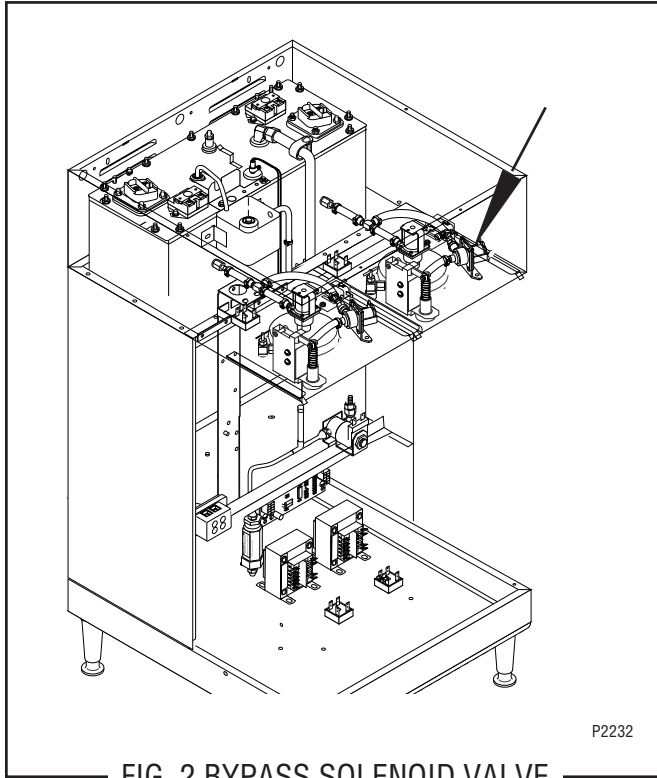


FIG. 2 BYPASS SOLENOID VALVE

#### Location:

The bypass valves are located inside the right front and the center front of the hood.

#### Test Procedures:

1. Disconnect the brewer from the power source and place 1.5 or 1.75 gallon server under the funnel.
2. Check the water level in the tank to confirm that it is within 1/2" from the top of the tank.
3. Connect the brewer to the power source.
4. Check the bypass valve for coil action. Place the ON/OFF switch in the "ON" position, press and release the BREW switch. Listen carefully in the vicinity of the bypass valve for a "clicking" sound as the coil magnet attracts and repels the plunger.
5. Disconnect the brewer from the power source.

If the sound is heard as described, there may be a blockage in the bypass valve or the water line to the sprayhead. Remove the bypass valve and inspect for wear, and remove waterborne particles.

If the sound is not heard as described, proceed to #6.

6. Connect the voltmeter lead ends to the bypass valve coil terminals. Connect the brewer to the power source. With the selector switch in the 1.5 or 1.75 gallon position, place "ON/OFF" Switch in the "ON" position. Press and release the brew switch. The indication must be 120 volts ac for three wire 120/208 volt models and three wire 120/240 volt models.

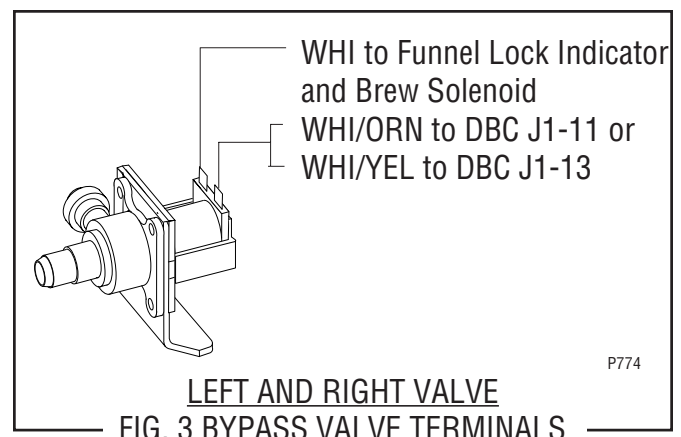
7. Disconnect the brewer from the power source.

If voltage is present as described, but no coil action is observed, nor "clicking" heard, bypass valve is defective. Replace valve and test again to verify repair.

If voltage is not present as described, refer to *Wiring Diagrams* and check the brewer wiring harness. Also check the control board for proper operation. See Pages 23 through 27.

#### Removal and Replacement:

1. Remove the wires from the bypass valve.
2. Drain enough water from the tank so bypass valve is above the water level
3. Remove water lines from bypass valve.
4. Remove the two nuts retaining the bypass valve inside the hood and remove bypass valve.
5. Remove hose barb fitting and attach to new bypass valve.
6. Install new bypass valve with hose barb fitting.
7. Reconnect the water tubes and the wires to the bypass valve.
8. Refer to Fig. 3 when reconnecting the wires.





## SERVICE (cont.)

### BREW SELECTOR SWITCH

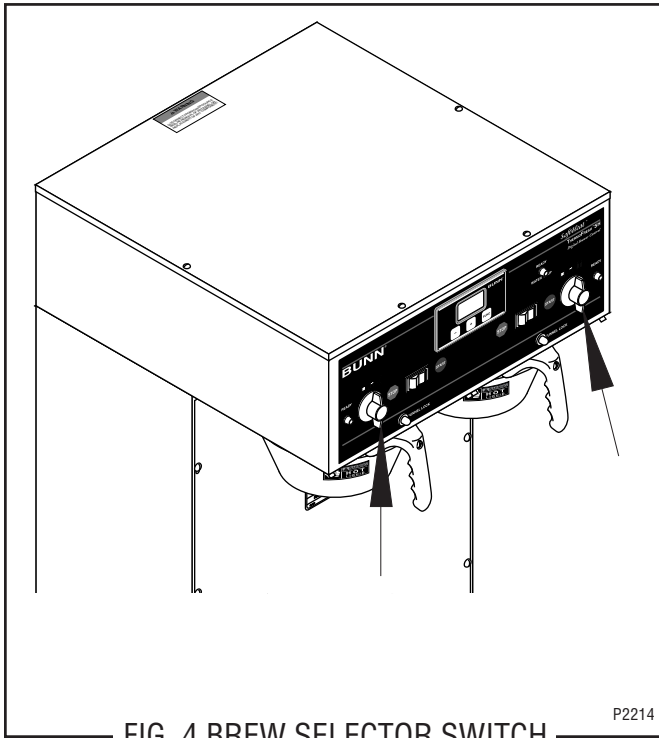


FIG. 4 BREW SELECTOR SWITCH

#### Location:

The brew selector switches are located in the front left and right side of the hood.

#### Test Procedure:

##### Timer: Left or Right

1. Disconnect the brewer from the power supply.
2. Separate the connector on the selector switch harness from the brew timer circuit board.
3. Carefully slide the plastic cover off of the connector from the switch harness.
4. Check for continuity across the pink and tan wires on the connector when the switch is in the 1/2 gallon position. Continuity must not be present in any other switch position.
5. Check for continuity across the pink wire and gray wire when the switch is in the 1 gallon position. Continuity must not be present in any other position.
6. Reattach the connector to the brew timer circuit board.

##### Grinder Interface: Left or Right:

7. Disconnect the gray and tan wires on the selector switch from the gray and tan wires on the interface socket.
8. Disconnect the pink wire on the selector switch from the grinder switch.
9. Check for continuity across the pink wire and tan wire on the selector switch when the switch is in the 1/2 gallon position. Continuity must not be present in any other position.
10. Check for continuity across the pink wire and gray wire on the selector switch when the switch is in the 1 gallon position. Continuity must not be present in any other position.
11. Reconnect the gray and tan wire on the selector switch to the gray and tan wires on the interface socket.
12. Reconnect the pink wire on the selector switch to the grinder switch.

##### Bypass Valve: Left or Right

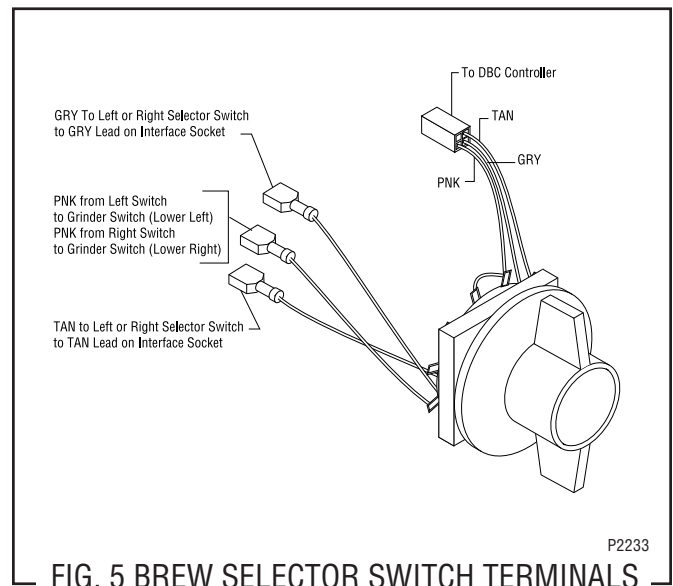
13. Disconnect the white/violet on the selector switch from the bypass valve coil and disconnect the white/red from the dispense valve coil.
14. Check for continuity across the white/violet and the white/red wires when the selector is in the 1 gallon, 1-1/2 gallon or 1-3/4 gallon position. Continuity must not be present in any other position.
15. Reconnect the white/violet to the bypass valve coil and white/red to the dispense valve coil.

## SERVICE (cont.)

### BREW SELECTOR SWITCH (cont.)

#### Removal and Replacement:

1. Disconnect the connector on the selector switch harness from the DBC controller.
2. Disconnect wires from the selector switch, interface socket and dispense valve.
3. Loosen the set screw on the switch knob.
4. Remove the 9/16" nut and washer holding the switch to the hood.
5. Remove the switch.
6. Install the new switch. The positioning tab must be in the hole in the hood for proper switch and knob alignment.
7. Install the knob so that the arrow points to the 1-1/2 or 1-3/4 gallon position when the switch is turned to the full right position.
8. Reattach the connector to the DBC controller.
9. Refer to Fig. 5 when reconnecting the wires.



## SERVICE (cont.)

### CIRCUIT BREAKERS

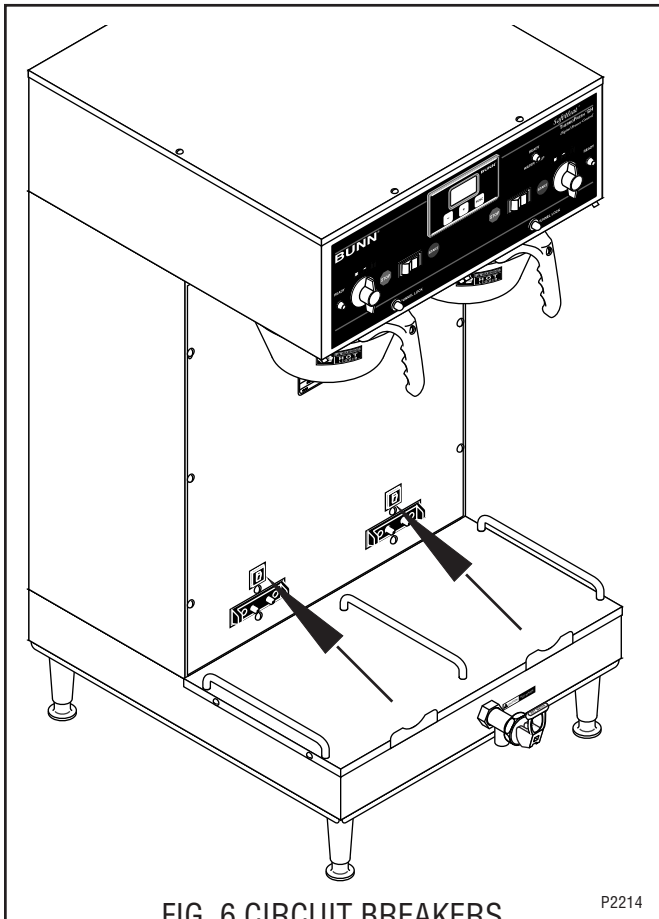


FIG. 6 CIRCUIT BREAKERS

P2214

#### Location:

The circuit breakers are located on the lower front of the brewer, mounted on the server platform just above the spring contact receptacle assembly.

#### Test Procedures:

1. Disconnect the dispenser from the power source.
2. Remove the wires from the circuit breaker.
3. Check for continuity between the terminals. Continuity must be present between the terminals.

If continuity is present as described the circuit breaker is functioning properly.

If continuity is not present as described, press reset button and repeat step #3, if continuity is not present as described, replace the circuit breaker.

#### Removal and Replacement:

1. Remove the wires from the circuit breaker.
2. Compress the clips on the back side of the server platform and gently push the circuit breaker through the opening in the server platform.
3. Push the new circuit breaker into the opening in the server platform until the clips snap into position.
4. Reconnect the wires to the circuit breaker.
5. Refer to Fig. 7 when reconnecting the wires.

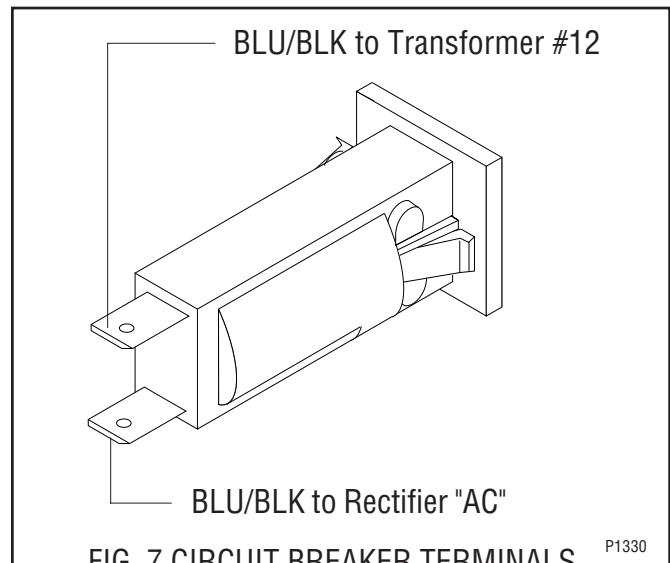
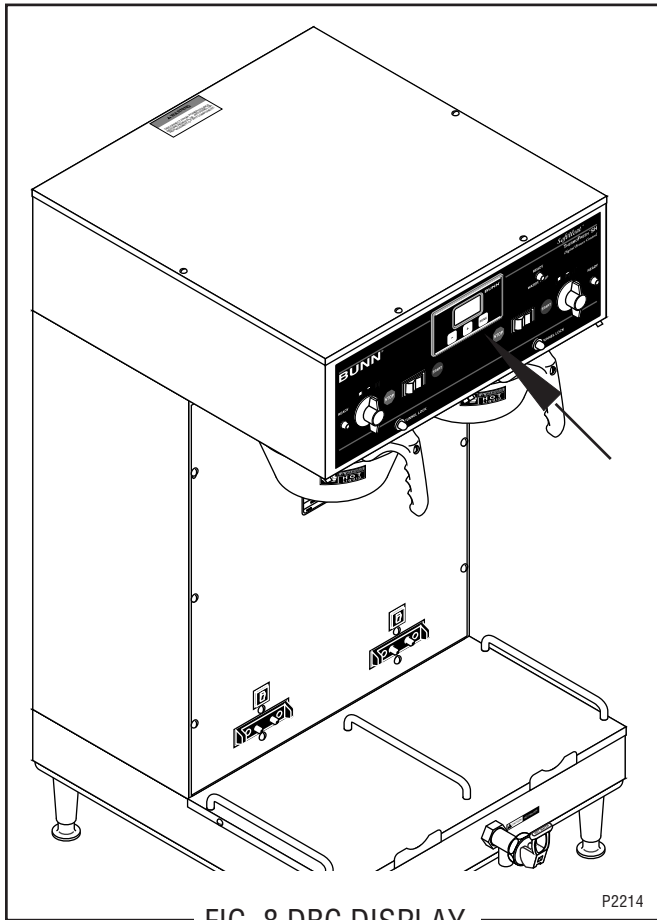


FIG. 7 CIRCUIT BREAKER TERMINALS

P1330

## SERVICE (cont.)

### DBC DISPLAY



#### Location:

The DBC Display is located inside the hood in the upper center of the control panel.

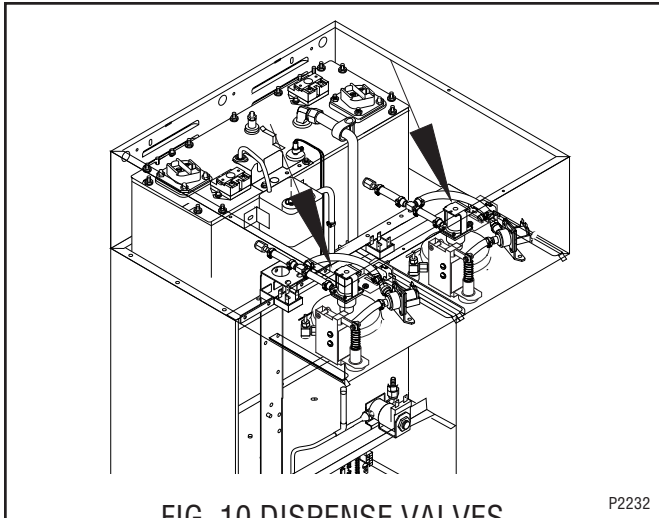
#### Test Procedures:

1. Disconnect the dispenser from the power source.

#### Removal and Replacement:

## SERVICE (cont.)

### DISPENSE SOLENOID VALVES



#### Location:

Dispense valves are located inside the hood in the center of each sprayhead panel.

#### Test Procedures:

1. Disconnect the brewer from the power source.
2. Disconnect the wires from the right dispense valve and check the voltage across the white wire and white/red wire. Connect brewer to the power source. Place the "ON/OFF" switch in the "ON" position, press and release the start switch. The indication must be 120 volts ac for three wire 120/208 volt models and three wire 120/240 volt models.
3. Disconnect brewer from the power source.
4. Disconnect the wires from the left dispense valve and check voltage across the white wire and the white/green wire. Connect the brewer to the power source. Place the "ON/OFF" switch in the "ON" position, press and release the start switch. The indication must be 120 volts ac for three wire 120/208 volt models and three wire 120/240 volt models.
5. Disconnect brewer from power source.

If voltage is present as described in steps 2 & 4 proceed to #6.

If voltage is not present as described, refer to the wiring diagrams and check the brewer wiring harness.

6. Check for continuity across the dispense valve coil terminals.

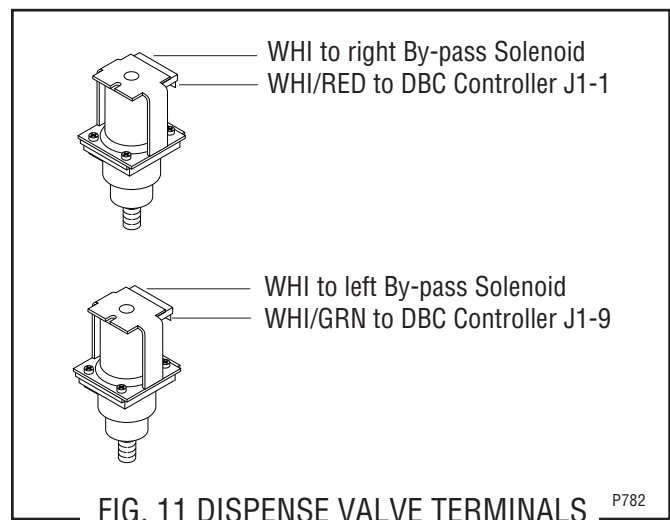
If continuity is present as described, reconnect the wires to the dispense valve(s) and proceed to #7  
If continuity is not present as described, replace the dispense valve.

7. Check the dispense valve for coil action. Connect the brewer to power source. Place the ON/OFF switch in the "ON" position, press and release the start switch. Listen carefully in the vicinity of the dispense valve for a "clicking" sound as the coil magnet attracts and repels the plunger.
8. Disconnect the brewer from the power source.

If the sound is heard as described, there may be a blockage in the dispense valve or the water line to the dispense valve. Remove the dispense valve and inspect for wear, and remove waterborne particles. If the sound is not heard as described, replace the dispense valve.

#### Removal and Replacement:

1. Drain enough water from the tank so the dispense valves are above the water level.
2. Disconnect wires and water tubes from dispense valve.
3. Remove dispense valve from the sprayhead panel.
4. Install new dispense valve.
5. Reconnect the water lines and the wires to the dispense valve.
6. Refer to Fig. 11 when reconnecting wires.



## SERVICE (cont.)

### FUNNEL SENSOR SWITCH

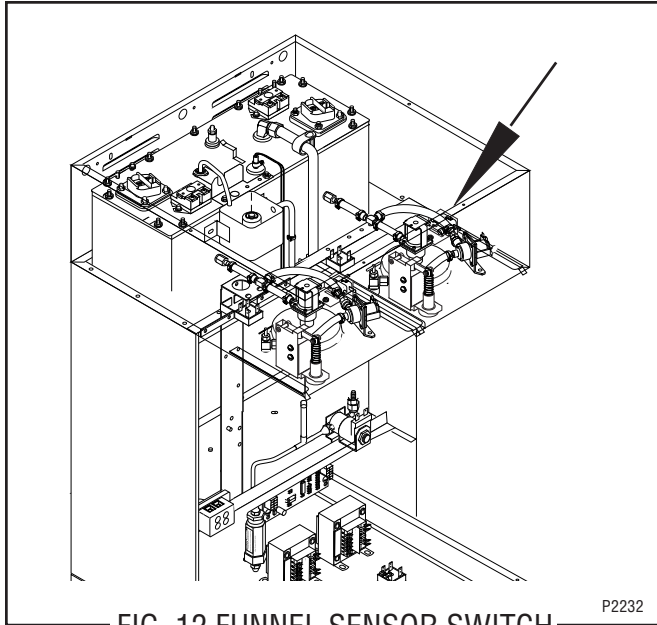


FIG. 12 FUNNEL SENSOR SWITCH

#### Location:

The Funnel Sensor switches are located inside the hood and to the right of each dispense valve.

#### Test Procedures:

1. Disconnect the dispenser from the power source.
2. Verify the funnel is activating the switch. Mechanical adjustment may be necessary.
3. Using an ohmmeter, verify continuity when switch is actuated and no continuity when switch is not actuated.

#### Removal and Replacement:

1. Remove the two wires from the switch.
2. Remove the two #4-40 screws securing the switch to the switch bracket and remove the switch.
3. Install the new switch to the bracket and secure with two #4-40 screws.
4. Refer to Fig. 13 when reconnecting wires.

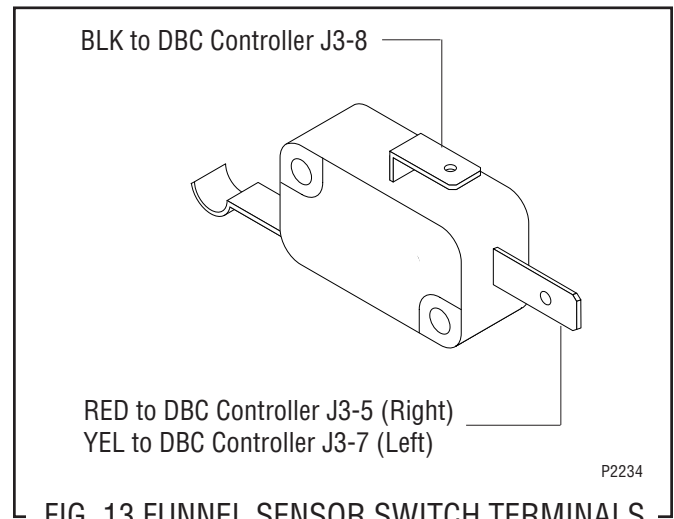


FIG. 13 FUNNEL SENSOR SWITCH TERMINALS

## SERVICE (cont.)

### FUNNEL LOCK SOLENOID

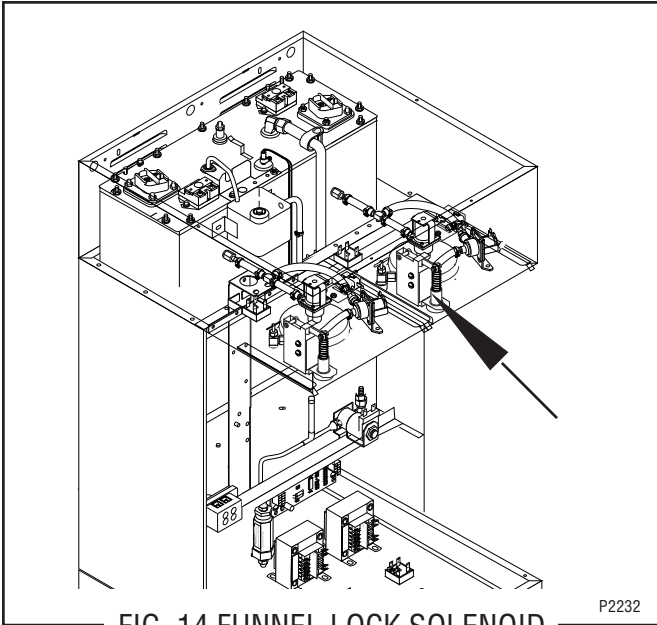


FIG. 14 FUNNEL LOCK SOLENOID

#### Location:

The Funnel Lock Solenoids are located inside the hood and to the front right of each dispense valve.

#### Test Procedures:

1. Disconnect the dispenser from the power source.

#### Removal and Replacement:



## SERVICE (cont.)

### GRINDER INTERFACE CIRCUIT BOARD

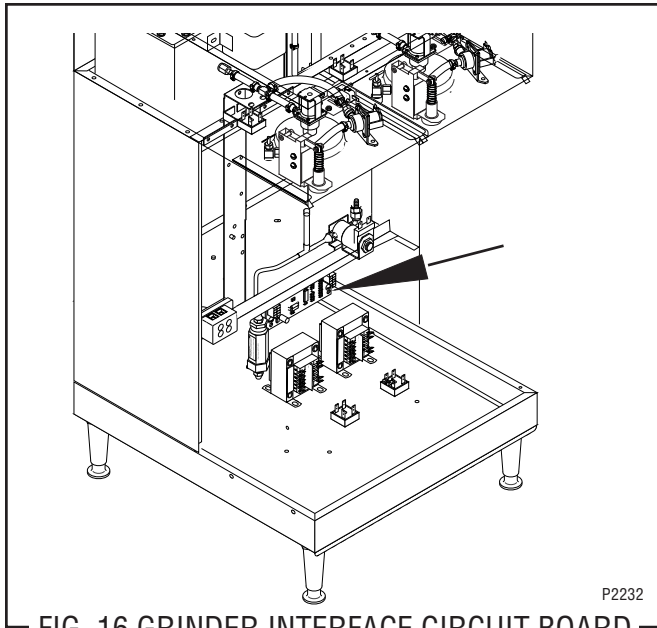


FIG. 16 GRINDER INTERFACE CIRCUIT BOARD

#### Location:

The Grinder Interface Circuit Board is located inside the trunk housing on a bracket just below the Tank Assy.

#### Test Procedures:

1. Disconnect the dispenser from the power source.

#### Removal and Replacement:

## SERVICE (cont.)

### GRINDER SELECTOR SWITCH

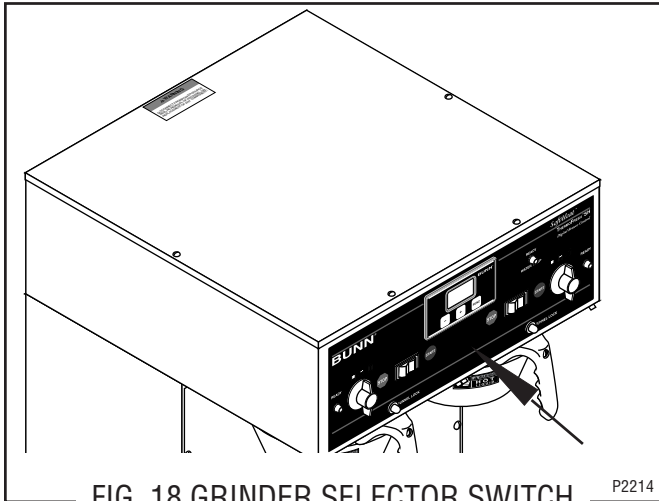


FIG. 18 GRINDER SELECTOR SWITCH

#### Location:

The grinder selector switch is located in the upper center on the front of the hood.

#### Test Procedure:

1. Disconnect the brewer from the power source.
2. Remove all wires from the switch terminals.
3. Place the selector switch in the left position.
4. Check for continuity across the center and right terminals on the rear of the switch.
5. Continuity must not be present across the center and left terminals on the rear of the switch.
6. Check the bottom row, then the top row of terminals.

If continuity is present as described proceed to #7.

If Continuity is not present as described replace the switch.

7. Place the selector switch in the right position.
8. Check for continuity across the center and left terminals on the rear of the switch.
9. Continuity must not be present across the center and right terminals on the rear of the switch.
10. Check the bottom row, then the top row.

If continuity is present as described, reconnect the wires, the switch is operating properly.

If continuity is not present as described, replace the switch.

11. Refer to Fig. 19 when reconnecting the wires.

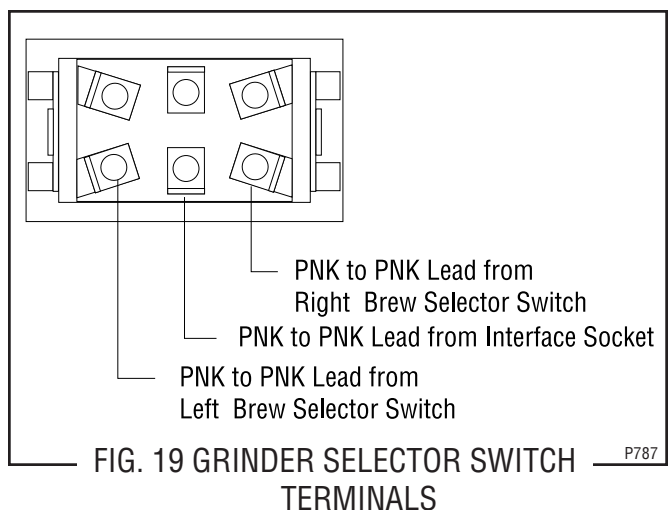


FIG. 19 GRINDER SELECTOR SWITCH  
TERMINALS

## SERVICE (cont.)

### LIMIT THERMOSTAT

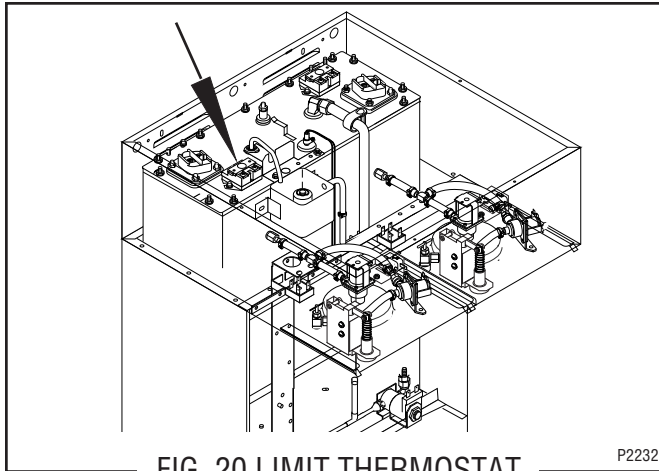


FIG. 20 LIMIT THERMOSTAT

#### Location:

The limit thermostat is located inside the hood on the tank lid just to the left of the right tank heater.

#### Test Procedure:

1. Disconnect the brewer from the power supply.
2. Disconnect the black wires from the limit thermostat.
3. Check continuity across the limit thermostat terminals with an ohm meter

If continuity is present as described, reconnect the black wires to the limit thermostat, the limit thermostat is operating properly.

If continuity is not present as described, press the reset button on the limit thermostat and repeat step #3. After repeating step #3 no continuity is shown, replace the limit thermostat.

#### Removal and Replacement:

1. Remove all wires from the limit thermostat terminals.
2. Carefully remove the two #8-32 nuts securing the limit thermostat to tank lid and remove limit thermostat.
3. Carefully secure new limit thermostat to tank lid.
4. Refer to Fig. 21 when reconnecting the wires.

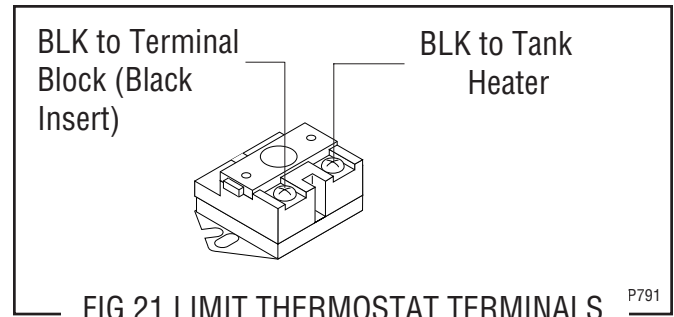


FIG. 21 LIMIT THERMOSTAT TERMINALS

## SERVICE (cont.)

### OVERFLOW PROTECTION SWITCH

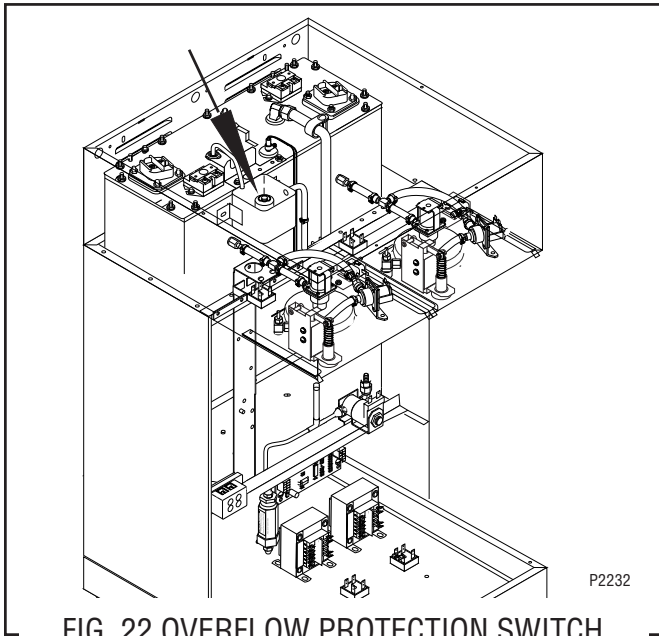


FIG. 22 OVERFLOW PROTECTION SWITCH

#### Location:

The overflow protection switch is located inside the hood on the left side of the tank inside the copper overflow cup.

#### Test Procedure:

1. Disconnect the brewer from the power source.
2. Remove the wire nuts connecting the red wires from the overflow protection switch to the wires to the DBC controller.
3. Check for continuity across the overflow protection switch red wires only until the plastic float is raised and check that continuity returns when the plastic float is again lowered.

If continuity is present as described, reconnect the red wires to the red wire from the DBC controller J3-11 and the black wire from DBC controller J3-12.

If continuity is not present as described, replace the overflow protection switch.

#### Removal and Replacement:

1. Disconnect the red leads from the overflow protection switch at the wire nuts.
2. Remove the nut beneath the copper overflow cup.
3. Remove the entire switch assembly from the cup.
4. Place the new switch assembly into the cup, wires first. Make sure that the gasket is in place around the threaded switch stem.

**NOTE** - The magnets must be at the top of float and there must be NO adjusting washers installed for the overflow protection switch to operate properly.

5. Install the nut beneath the copper overflow cup. Be sure not to overtighten.
6. Refer to Fig. 23 when reconnecting wires.

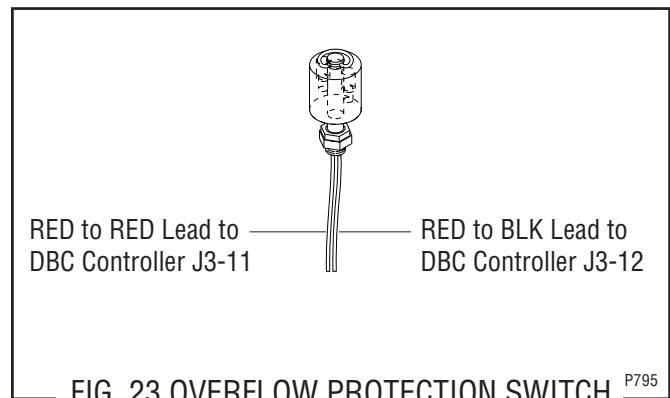


FIG. 23 OVERFLOW PROTECTION SWITCH LEADS

## SERVICE (cont.)

### RECEPTACLE ASSEMBLIES

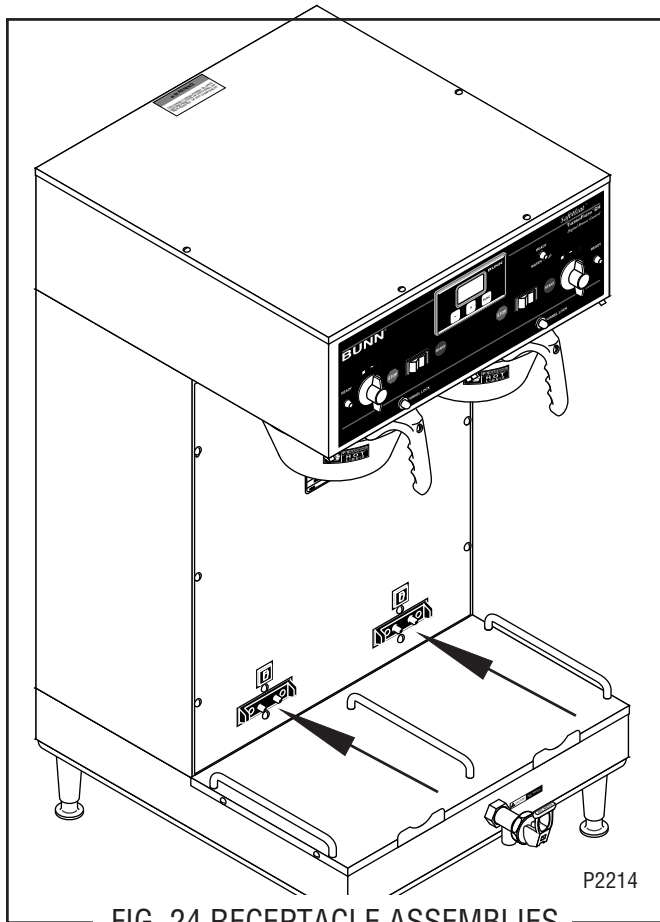


FIG. 24 RECEPTACLE ASSEMBLIES

#### Location:

The receptacle assemblies are located on the lower left and right front of the brewer mounted on the server platform.

#### Test Procedures:

1. Clean or replace spring contacts.

#### Removal and Replacement:

1. Disconnect the brewer from the power source.
2. Disconnect the wires from the receptacle assembly.
3. Remove the two #6-32 flat head screws securing the receptacle to the server platform.
4. Remove and discard receptacle.
5. Install new receptacle in the server platform and secure two #6-32 flat head screws.
6. Refer to Fig. 25 and reconnect the wires.

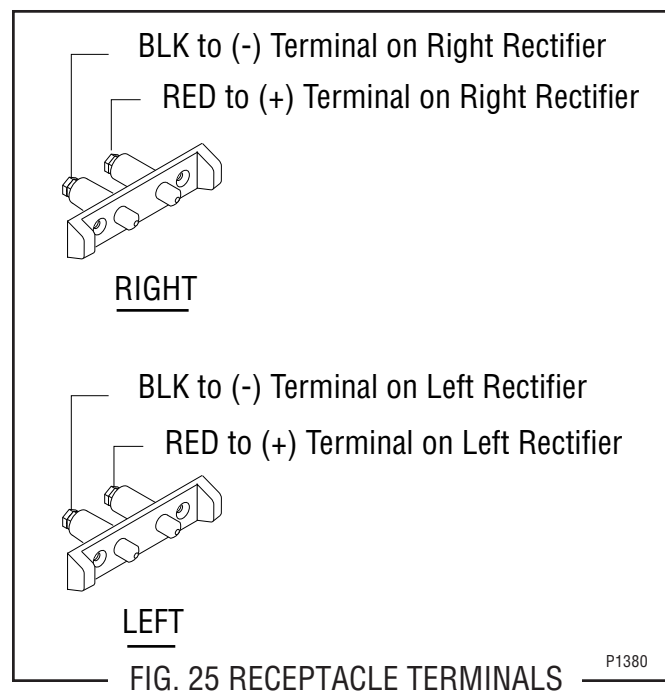


FIG. 25 RECEPTACLE TERMINALS

## SERVICE (cont.)

### RECTIFIERS

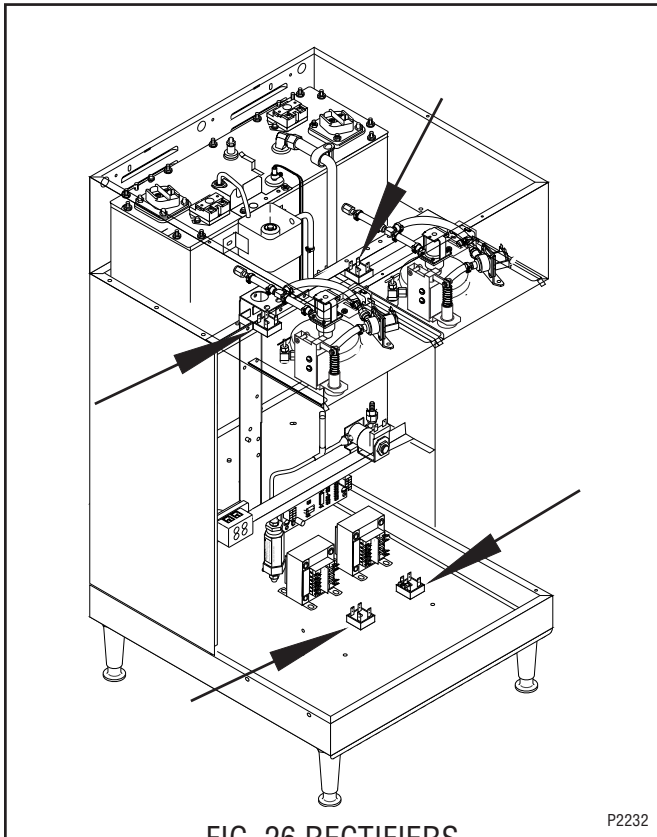


FIG. 26 RECTIFIERS

#### Location:

One pair of rectifiers are located inside the base housing on the right side of the base plate just in front of the transformers. Another pair of rectifiers are located in the hood housing just in front of the Water Tank Assy.

#### Test Procedures:

1. Disconnect the brewer from the power source;
2. Remove the wires from the (+) and (-) terminals on the rectifier to be tested.
3. With a voltmeter check the voltage across the (+) and (-) terminals on the rectifier. Connect the brewer to the power source. The indication must be 24 volts dc.
4. Disconnect the brewer from the power source.

If voltage is present as described, the rectifier is operating properly.

If voltage is not present as described, refer to the brewer wiring diagrams and check the brewer wiring harness.

#### Removal and Replacement:

1. Disconnect the wires from the rectifier.
2. Remove the #6-32 truss head screw securing the rectifier to the brew base plate.
3. Remove the rectifier and discard.
4. Install new rectifier on base plate and secure with a #6-32 truss head screw.
5. Refer to Fig. 27 & 28 when reconnecting the wires.

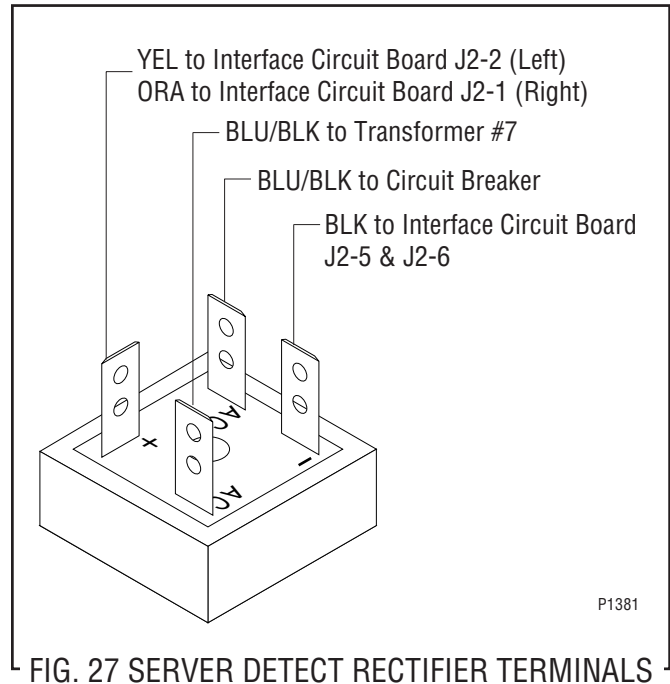


FIG. 27 SERVER DETECT RECTIFIER TERMINALS

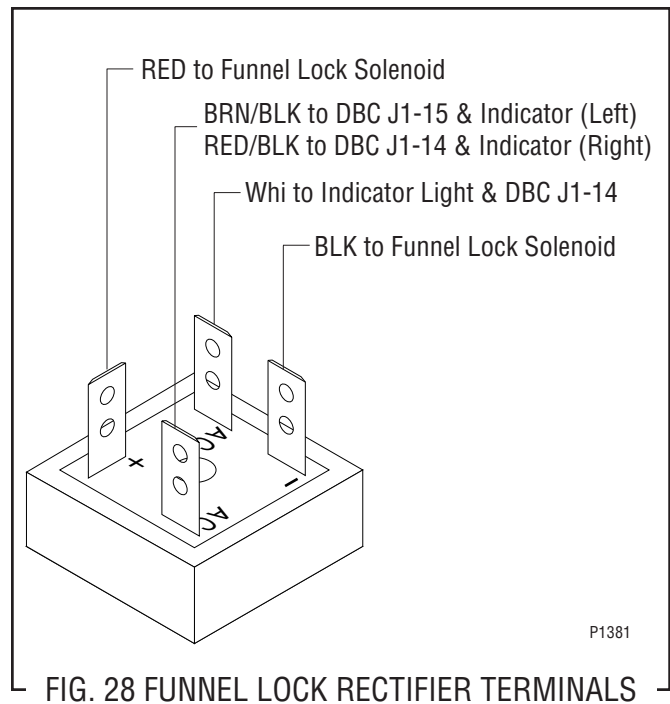


FIG. 28 FUNNEL LOCK RECTIFIER TERMINALS

## SERVICE (cont.)

### REFILL SOLENOID VALVE

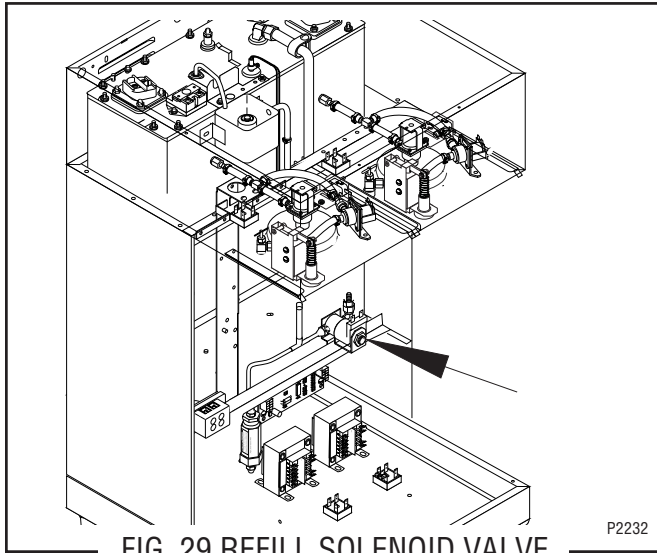


FIG. 29 REFILL SOLENOID VALVE

#### Location:

The solenoid valve is located inside the lower right front of the brewer.

#### Test Procedure:

1. Disconnect the brewer from the power source and draw 1/4 gallon of water from faucet.
2. Remove both wires from the solenoid valve coil terminals.
3. With a voltmeter check the voltage across the white/blue wire and white wire. Connect the brewer to the power source. The indication must be 120 volts ac for 120/208V and 120/240V three wire models.
4. Disconnect the brewer from the power source.

If voltage is present as described, proceed to #5.

If voltage is not present as described, refer to the wiring diagrams and check brewer wiring harness.

5. Check for continuity across the solenoid valve coil terminals.

If continuity is present as described, reconnect the white and white/blue wires.

If continuity is not present as described, replace the solenoid valve.

6. Check the solenoid valve for coil action. Connect the brewer to the power source. Listen carefully in the vicinity of the solenoid valve for a "clicking" sound after approximately 1 second, as the coil magnet attracts.
7. Disconnect the brewer from the power source.

If the sound is heard as described and water will not pass through the solenoid valve, there may be a blockage in the water line before or after the solenoid valve or, the solenoid valve may require inspection for wear, and removal of waterborne particles.

If the sound is not heard as described, replace the solenoid valve.

#### Removal and Replacement:

1. Remove all wires from the solenoid valve coil.
2. Turn off the water supply to the brewer.
3. Disconnect the water lines to and from the solenoid valve.
4. Remove the two #8-32 slotted head screws holding the solenoid valve and mounting bracket to the brewer trunk.
5. Lift-out the solenoid valve.
6. Remove the two #10-32 slotted head screws holding the solenoid valve to the mounting bracket.
7. Securely install the new solenoid valve to its mounting bracket.
8. Attach the solenoid valve and mounting bracket to the brewer trunk.
9. Securely fasten the water lines to and from the solenoid valve.
10. Refer to Fig. 30 when reconnecting the wires.

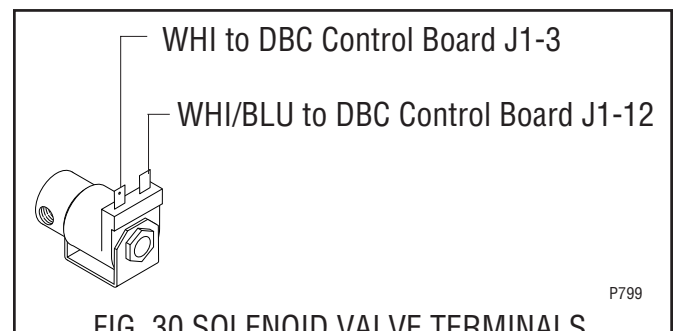
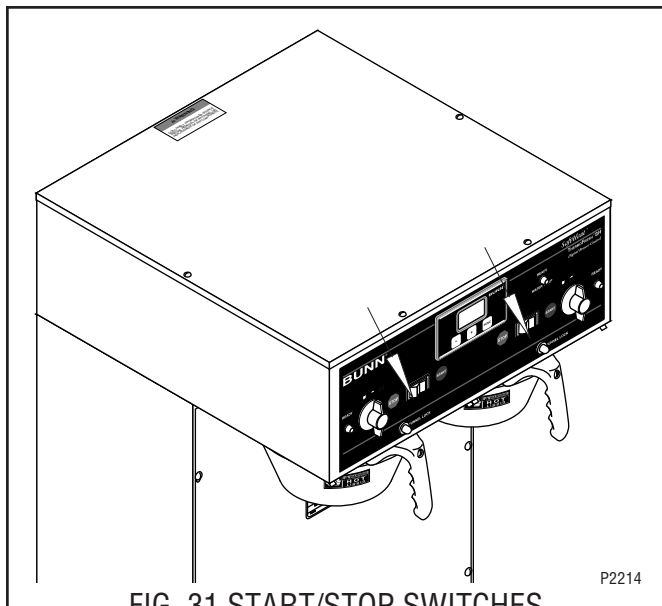


FIG. 30 SOLENOID VALVE TERMINALS



## SERVICE (cont.)

### START/STOP SWITCHES



#### Removal and Replacement:

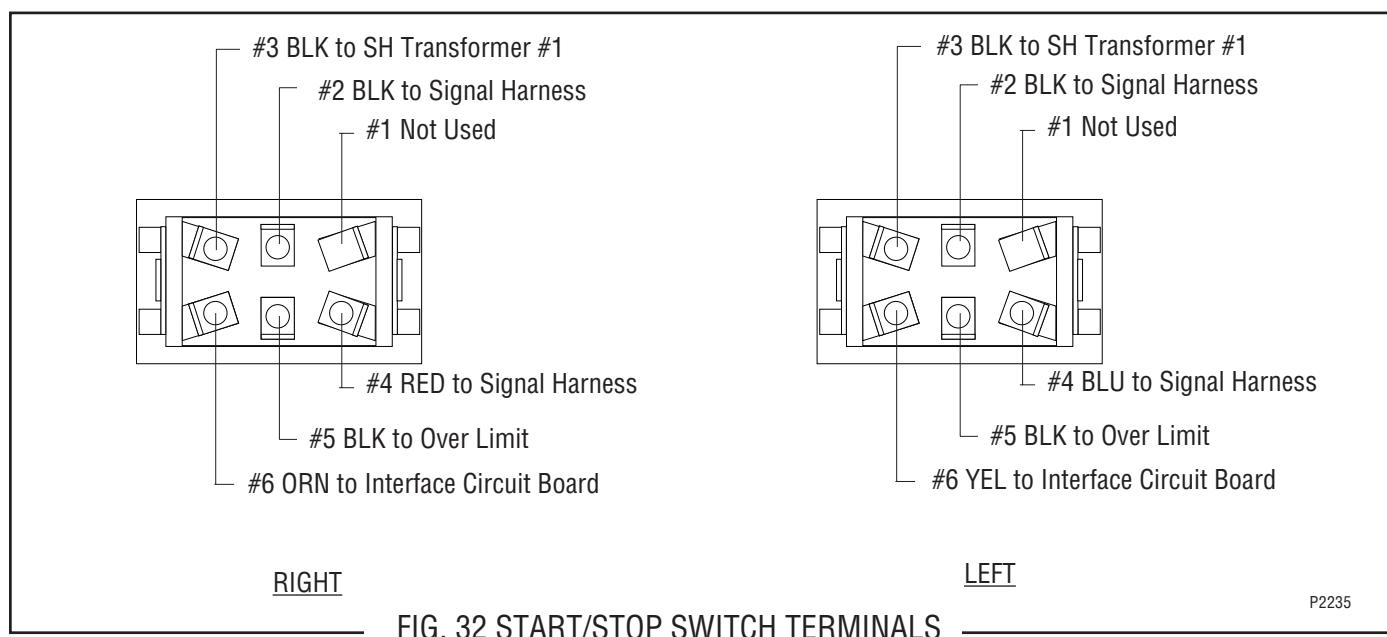
1. Remove all wires from the switch terminals.
2. Compress the clips inside the hood and gently push the switch through the opening.
3. Push the new switch into the opening and spread the clips to hold the switch in the hood.
4. Refer to Fig. 32 when reconnecting the wires.

#### Location:

The momentary START/STOP switches are located in front of hood just left and right of center.

#### Test Procedure:

1. Disconnect the brewer from the power source.



## SERVICE (cont.)

### TANK HEATERS

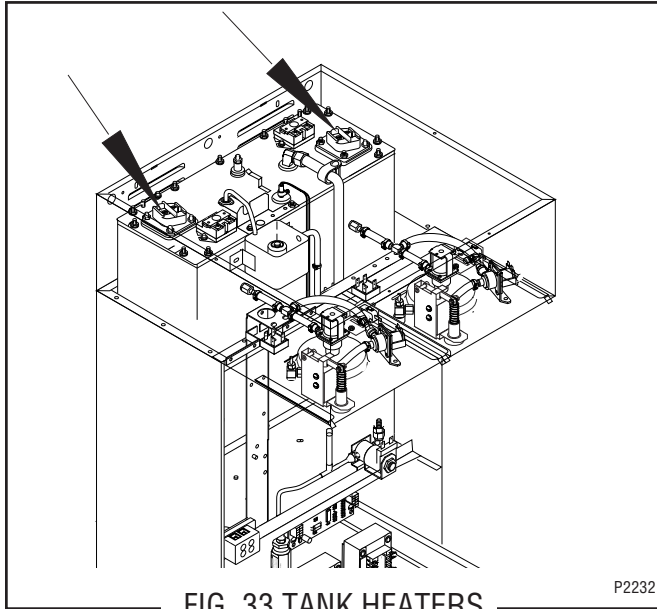


FIG. 33 TANK HEATERS

#### Location:

The tank heaters are located on the left and right side of the tank lid.

#### Test Procedure:

1. Disconnect the brewer from the power supply.
2. Check the voltage across the black and the blue wires on the tank heaters. With the control thermostat turned to the "ON" position (fully clockwise), connect the brewer to the power supply and check the voltage across the wires with a voltmeter. The indication should be 208 volts ac for three wire 120/208 volt models and 240 volts ac for three wire 120/240 volt models.
3. Disconnect the brewer from the power supply.

If voltage is present as described, proceed to #4.

If voltage is not present as described, refer to the wiring diagrams and check the wiring harness.

4. Remove the black and blue wires from the tank heaters.
5. Check for continuity across the terminals of the tank heaters.

If continuity is present as described, reconnect the wires, the tank heaters are operating properly. If continuity is not present as described, replace the tank heater(s).

**NOTE** - If the tank heater remains unable to heat, remove and inspect the heater for cracks in the sheath.

#### Removal and Replacement:

1. Remove wires from tank heater.
2. Remove the four #8-32 nuts securing tank heater to tank lid.
3. Remove tank heater and gasket.
4. Install new tank heater and gasket with four #8-32 nuts on tank lid.
5. Refer to Fig. 34 when reconnecting the wires.

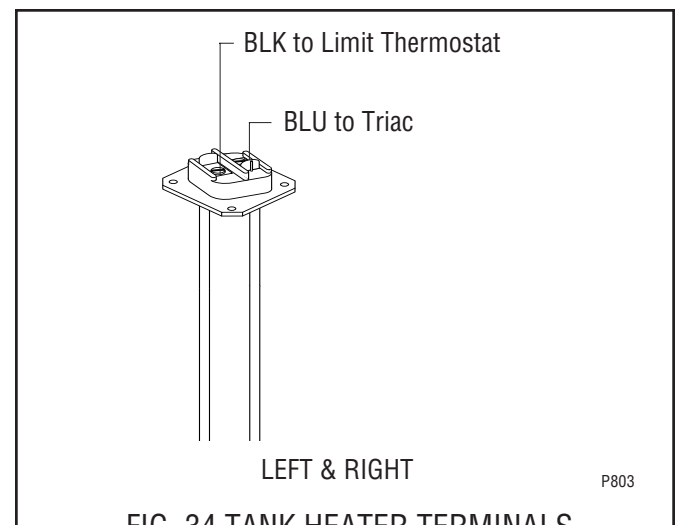


FIG. 34 TANK HEATER TERMINALS

## SERVICE (cont.)

### TRANSFORMERS

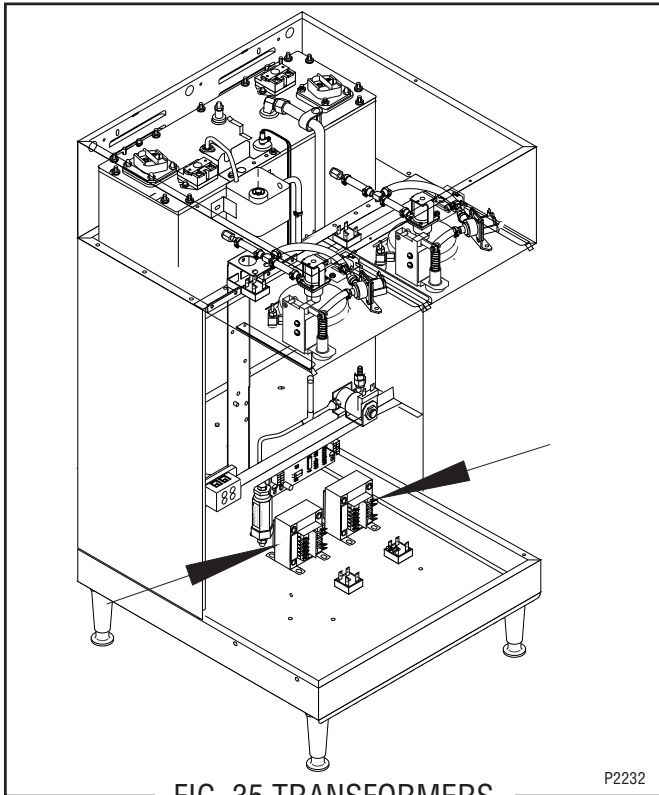


FIG. 35 TRANSFORMERS

#### Location:

The transformers are located in the brewer base on the right center of the base plate.

#### Test Procedures:

1. Disconnect the brewer from the power source.
2. Disconnect the black wire from terminal #1 (from the START switch) and the white or red wire from terminal # 6.
3. With a voltmeter check the voltage across the black and white wire. Connect the brewer to the power supply. The indication must be 120 volts ac for three wire 120/208 volt models and three wire 120/240 volt models.
4. Disconnect the brewer from the power supply.

If voltage is present as described reconnect the wires and proceed to #5.

If voltage is not present as described, refer to the wiring diagrams and check the brewer wiring harness.

5. Disconnect the blue/black wires from terminals #7 and #12 on the transformer.
6. With a voltmeter check the voltage across the blue/black wires. Connect the brewer to the power source. The indication must be 24 volts ac.

If voltage is present as described the transformer is operating properly.

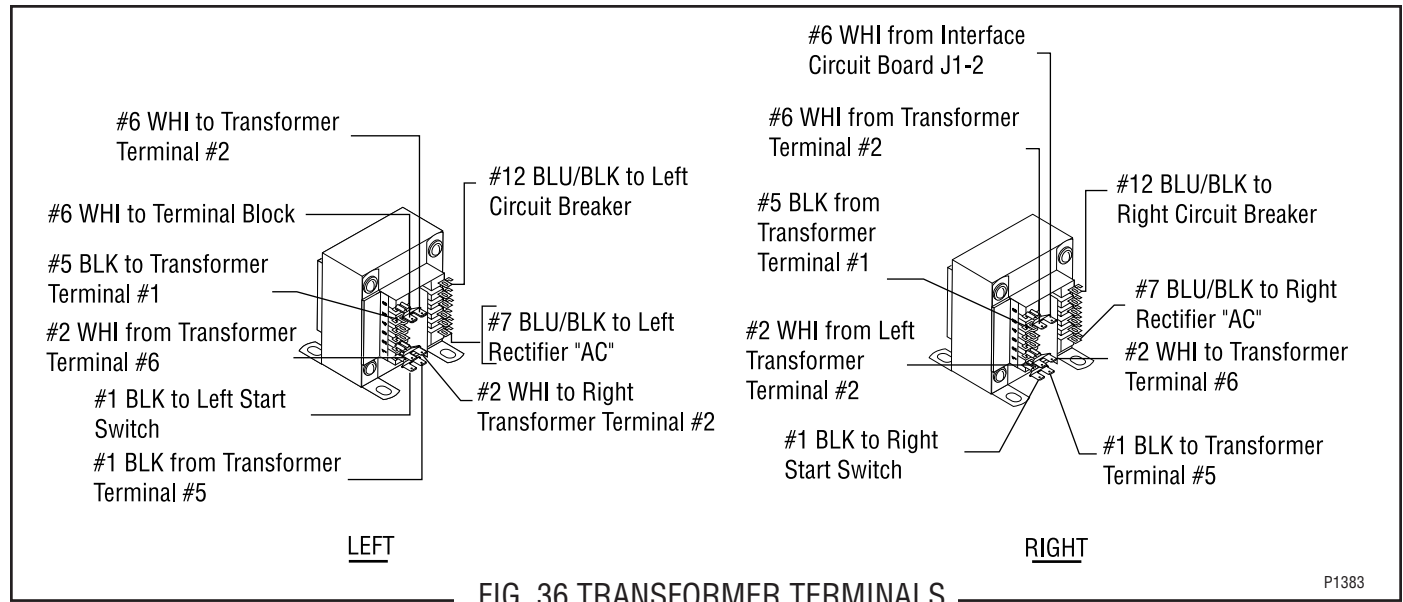
If voltage is not present as described, replace the transformer.

#### Removal and Replacement:

1. Disconnect all the wires from the transformer that is to be replaced.
2. Remove the two #6-32 screws and the two #6-32 keps nuts securing the transformer to the brewer base plate.
3. Remove transformer and discard.
4. Install new transformer on the brewer base plate securing with two #6-32 screws and two #6-32 keps nuts.
5. Refer to Fig. 36 to reconnect the wires.

## SERVICE (cont.)

## TRANSFORMERS (cont.)



# **DUAL SH BREWER W/DIGITAL BREWER CONTROL, FUNNEL SENSING, FUNNEL LOCKING & SERVER SENSING** **SCHEMATIC WIRING DIAGRAM**

